SnapoSafe

Abstract

This project aims to build a password management system where you can add and retrieve passwords for various apps and websites. The main manager is secured using a master password that is hashed with the help of SHA-256 while the other individual passwords in the manager uses XOR encryption and is stored in hexadecimal form. A basic GTK-based GUI setup has been used to make the project more interactive.

Problem Statement

In today's digital world, we are required to learn more passwords than names and as we know repeating passwords is quite unsafe. A password manager thus helps us store all passwords at one place and requires us to remember only one password.

Objective

- To develop a secure password manager with a GUI using C and GTK 3.
- To implement secure master password protection using SHA-256 hashing.
- To encrypt and store passwords in a file using XOR encryption.
- To enable password retrieval based on website input.
- To ensure basic password strength and validation.

Workflow

1. Master Password Verification/Setup (if not already set)
2. User entered Website/App
3. Add password (XOR encrypt →store in txt file as hex)
4. Find Password (Search txt file → hex to bytes →XOR decrypt)

Results
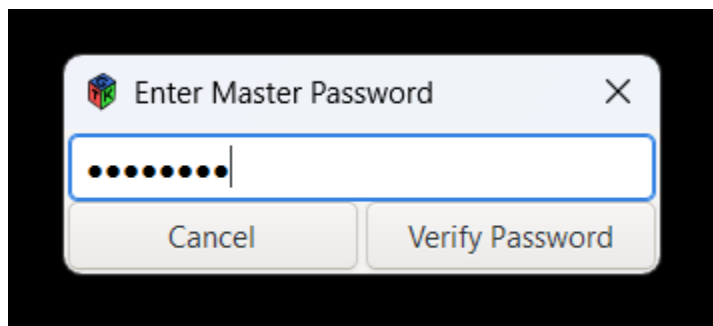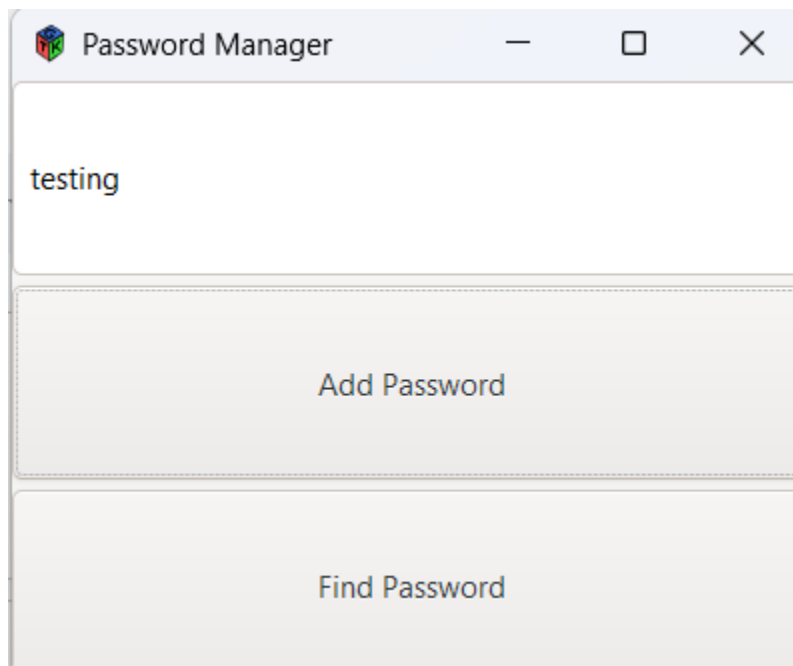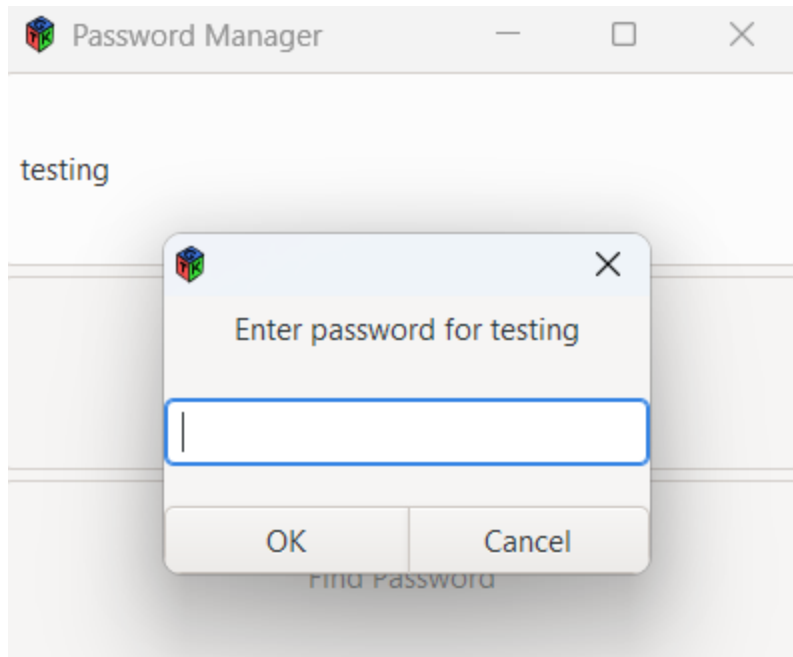
```
ojasw@HP UCRT64 /c/Users/ojasw/Documents/ICS Project
$ ./password
Master password verified successfully.
Decrypted password: ASD
Master password verified successfully.
Encrypted password saved to 'encrypted_password.txt'
Decrypted password: check1234
```

Future Scope

- Better UI/UX.
- Using stronger encryption such as AES, RSA, etc.
- More functionalities such as delete, including a password generator, etc.

References

https://youtu.be/HHQ2QP_upGM?si=iIJontGFGjBTczV9
https://youtu.be/2Ti5yvumFTU?si=eDHWvgBKfKlbOqID
https://youtu.be/orIgy2MjqrA?si=OzAkOtg69VSs6WqV
https://www.geeksforgeeks.org/c-programming-language/
https://docs.gtk.org/